



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,981	10/20/2005	Kayo Kamei	4255-23	8249
23117	7590	01/08/2008	EXAMINER	
NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203			PRIMO, ALLISTER O	
ART UNIT	PAPER NUMBER			
	4125			
MAIL DATE	DELIVERY MODE			
01/08/2008	PAPER			

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/553,981	KAMEI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	ALLISTER PRIMO	4125	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 10/20/2005.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1-6 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1-6 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on 20 October 2005 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>10/20/2005</u> .	5) <input type="checkbox"/> Notice of Informal Patent Application
	6) <input type="checkbox"/> Other: _____ .

## DETAILED ACTION

1. This action is in response to the original filing of October 20, 2005. Claims 1 - 6 are pending and have been considered below.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claim(s) 1-2 & 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masako(JP Pub 2000-313533 English translation) hereafter Masa in view of Keiji(JP Pub 62-111851) hereafter Keiji.

With regards to claim 1 Masa discloses in drawing 2, an image forming apparatus, provided with a paper feed cassette (with “paper feed cassette 1” as the paper feed cassette) and an image forming portion, that takes out a recording medium stored in this paper feed cassette sheet by sheet in response to an image forming request and performs image forming in the image forming portion, the image forming apparatus comprising: a push-out means that can push out the paper feed cassette from an installed state toward an uninstalled state relative to the main body of the apparatus (with “push-out means 4” as the push-out means);

but does not teach a warning means that can emit a warning that there is insufficient paper to a user who requested image forming; or a sheet quantity confirming means that can confirm the number of sheets of the recording medium stored in the paper feed cassette; or a control means that causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette when an image forming request has been received, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient.

Keiji teaches, in the constitution section of the abstract, a warning means that can emit a warning that there is insufficient paper to a user who requested image forming (with “size display 121a-d” as the warning means); a sheet quantity confirming means that can confirm the number of sheets of the recording medium stored in the paper feed cassette (In lines 10-14 Keiji teaches “ a display section 120 displays a size of the paper sheets, remaining amounts of paper sheets in cassette having different capacities.” Since the apparatus is capable of displaying the remaining amounts of paper in cassette the examiner considers the ‘sheet quantity confirming means’ to be an inherent part of the apparatus) ; a control means that causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette when an image forming request has been received, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient( In figure 8 with “CPU 204” as the control means.” Since the apparatus as disclose by the references above, is capable of displaying the remaining amounts of paper in cassette (lines 10-14 Keiji), pushing the paper feed cassette from an installed state to and uninstalled state (Masa solution section lines 3-6), and has a warning means to

warn the user that the number of sheets of the recording medium is insufficient(lines 12-14 Keiji), it is inherent by the structure and references as applied above that the control means of the apparatus is capable of carrying out the functions recited. )

It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclosed by Masa with the teachings of Keiji, as discussed above, because the added components will warn the user and apparatus when not enough paper is present for current job, and allow the apparatus to prevent unnecessary printing of a job due to lack of paper.

With regards to claim 2, the references as applied above, disclose the claimed invention except wherein when an image forming request has been received from a terminal machine through a network, the control means lets the sheet quantity confirming means confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient. (The phrase, "wherein

when an image forming request has been received from a terminal machine through a network" is an intended usage phrase that is not positively recited as required by the claim.) Keiji discloses in figure 8, the control means that lets the sheet quantity confirming means confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient( with, "CPU 204" as the control means.) It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclosed by Masa with the teachings of Keiji, as discussed above, because the control means will warn the user and apparatus when not enough paper is present for current job, and allow the apparatus to prevent unnecessary printing a job due to lack of paper.

With regards to claim 5 the references as applied above disclose the claimed invention except wherein the push-out means comprises: an engaging mechanism that can switch between an engaged state and a released state of the paper feed cassette relative to the main body of the apparatus; and a biasing

portion that confers a biasing force on the paper feed cassette in the push-out direction; and wherein when the number of sheets of the recording medium stored in the paper feed cassette is lower than the requested number of image forming sheets, the engaging mechanism puts the paper feed cassette in a released state relative to the main body of the apparatus. Masa discloses (in drawing 2,) an engaging mechanism that can switch between an engaged state and a released state of the paper feed cassette relative to the main body of the apparatus (with, “push-out means 4” as the engaging mechanism. The solution section lines 3-6 also teaches, “engaging mechanism that can switch between an engaged state and a released state of the paper feed cassette relative to the main body of the apparatus” ) ; and a biasing portion that confers a biasing force on the paper feed cassette in the push-out direction (with, “Spring 5” as the biasing portion); and wherein when the number of sheets of the recording medium stored in the paper feed cassette is lower than the requested number of image forming sheets, the engaging mechanism puts the paper feed cassette in a released state relative to the main body of the apparatus( In solution section lines 7-13). It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclosed by the reference above, with the teachings of Masa, as discussed above, because the added components allow the apparatus to push the tray out from an installed state.

With regards to claim 6 the reference as applied above disclose the claimed invention except wherein the control means, immediately after an image forming request has been received, causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient. Keiji teaches (in figure 8), the control means, immediately after an image forming request has been received, causes the sheet quantity confirming means to confirm the number of sheets of the recording medium stored in the paper feed cassette, and if the number of sheets of the recording medium stored in the paper feed cassette is lower than the number of sheets requested by the image forming request, the control means causes the paper feed cassette to be pushed out from an installed state toward an uninstalled state by the push-out means without executing the image forming operation, and causes the user to be warned by the warning means that the number of sheets of the recording medium is insufficient (with "CPU 204" as the control means.)

Since the apparatus as disclose by the references above, is capable of displaying the remaining amounts of paper in cassette (lines 10-14 Keiji), pushing

the paper feed cassette from an installed state to and uninstalled state (Masa solution section lines 3-6), and has a warning means to warn the user that the number of sheets of the recording medium is insufficient(lines 12-14 Keiji), it is inherent by the structure and references as applied above that the control means of the apparatus is capable of carrying out the functions recited.) It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclosed by Masa with the teachings of Keiji, as discussed above, because the control means will warn the user and apparatus when not enough paper is present for current job, and allow the apparatus to prevent unnecessary printing a job due to lack of paper.

4. Claim(s) 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masa, in view of Keiji, and further in view of Ayuba( JP Pat. 408157104) hereafter Ayuba.

With regards to claim 3, the reference as applied above, disclose the claimed invention except the image forming apparatus further comprising: a paper storage board supports a recording medium and moves to a lower position as the number of stored sheets of the recording medium increases; wherein the sheet quantity confirming means confirms the number of sheets of the recording medium stored in the paper feed cassette by detecting the height position of the paper storage board with a reflective optical sensor. Ayuba teaches, (in the constitution section of abstract), a paper storage board supports a recording

medium and moves to a lower position as the number of stored sheets of the recording medium increases (with, “supporting plate 12A” as the paper storage board); wherein the sheet quantity confirming means confirms the number of sheets of the recording medium stored in the paper feed cassette by detecting the height position of the paper storage board with a reflective optical sensor (with, “optical sensor 20” as the reflective optical sensor.) It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclosed by Masa with the teachings of Ayuba, as discussed above, because it allows the apparatus to accurately detect the remaining amount of sheet materials present in the cassette before they run out.

5. Claim(s) 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masa, in view of Keiji, and further in view of Nobusuke(JP Pub. 2000-335784) hereafter Nobu.

With regards to claim 4, the reference as applied above, disclose the claimed invention except wherein the paper feed cassette comprises: a matching portion made of metal that extends in the vertical direction along the edge of the stored recording medium and matches the recording medium; and a paper storage board made of metal that is movable along this matching portion in the vertical direction while contacting this matching portion and that moves to a lower position as the number of stored sheets of the recording medium increases;

wherein the sheet quantity confirming means lets a current flow from the paper storage board to the matching portion, and confirms the number of sheets of the recording medium stored in the paper feed cassette based on the electrical resistance from the paper storage board to the matching portion, which changes according to the height position of the paper storage board. Nobu teaches (in solution section of the abstract,) a matching portion made of metal that extends in the vertical direction along the edge of the stored recording medium and matches the recording medium (with, "residual detection part 9" as the matching portion); and a paper storage board made of metal that is movable along this matching portion in the vertical direction while contacting this matching portion and that moves to a lower position as the number of stored sheets of the recording medium increases( with, "bottom plate 2 " as the paper storage board); wherein the sheet quantity confirming means lets a current flow from the paper storage board to the matching portion, and confirms the number of sheets of the recording medium stored in the paper feed cassette based on the electrical resistance from the paper storage board to the matching portion, which changes according to the height position of the paper storage board.( In solution section lines 4-9.) It would be obvious to one having ordinary skill in the art at the time of the invention to combine the image forming apparatus disclose by Masa with the teaching of Nobu because, it allows to apparatus to make a emptied state visually recognizable when no paper is present in the paper feed cassette.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALLISTER PRIMO whose telephone number is (571)270-5069. The examiner can normally be reached on m-f 7:30 - 5:00..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles Garber can be reached on (571)272-2194. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AP

/Charles D. Garber/  
Supervisory Patent Examiner, Art Unit 4125